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CR-149880

LANDSAT PROGRESS REPORT

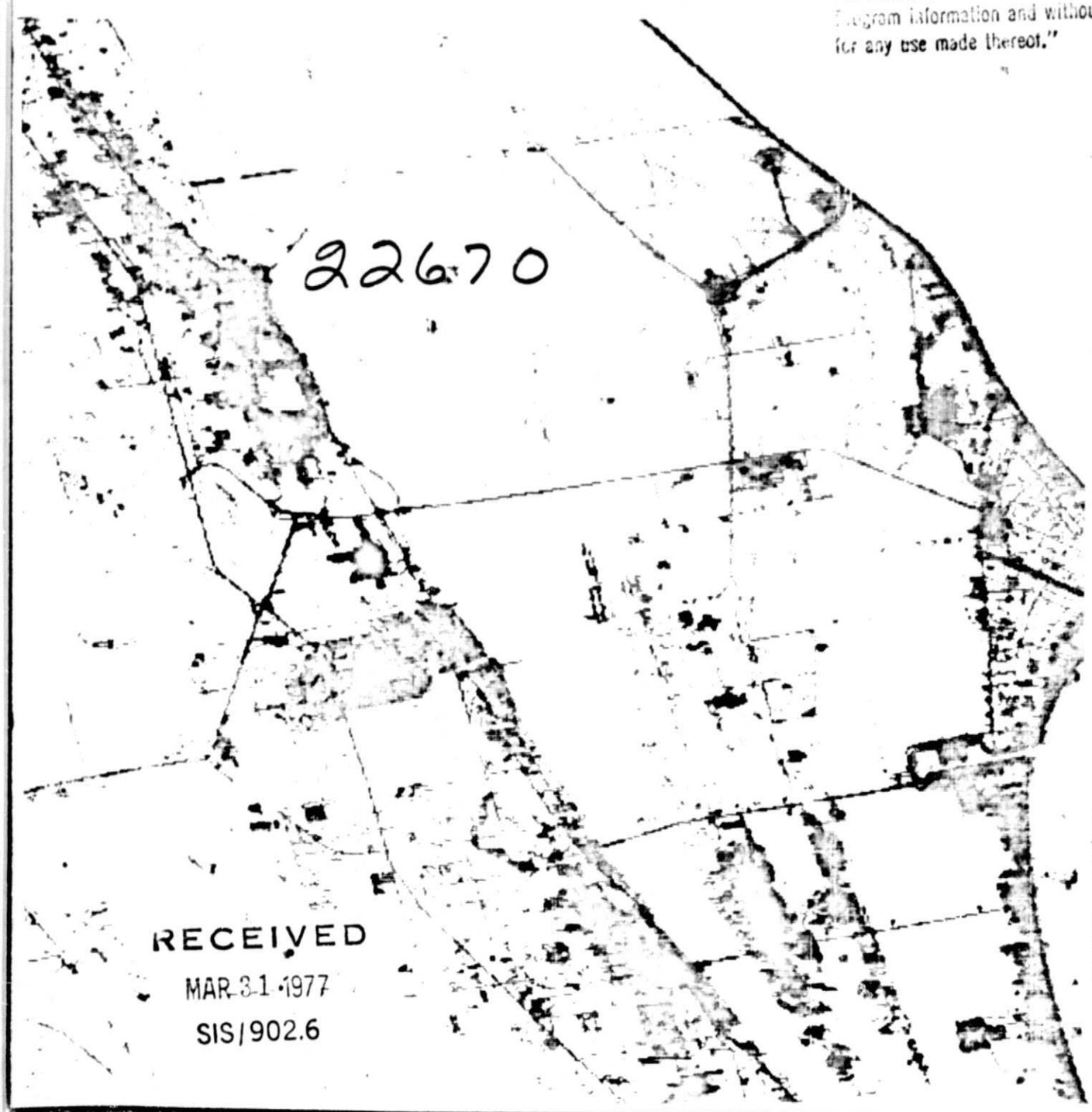
FOR THE PERIOD 12 AUGUST TO 11 NOVEMBER, 1976

PLANNING APPLICATIONS IN EAST CENTRAL FLORIDA

CONTRACT NO. NAS5-20907

BREVARD COUNTY PLANNING DEPARTMENT

REPORT NO. BCPD L2-7



22670

(E77-10133) PLANNING APPLICATIONS IN EAST CENTRAL FLORIDA Progress Report, 12 Aug. - 11 Nov. 1976 (Brevard County Planning Dept., Titusville) 35 p HC A03/MF A01 CSCL 08B

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LANDSAT PROGRESS REPORT

FOR THE PERIOD 12 AUGUST TO 11 NOVEMBER, 1976

PLANNING APPLICATIONS IN EAST CENTRAL FLORIDA

CONTRACT NO. NAS5-20907

Principal Investigator: John W. Hannah*

Co-Investigators: Dr. Garland L. Thomas*
Fernando Esparza**

Computer Programming: James J. Millard**

REPORT NO. BCPD L2-7

* Brevard County Planning Department

** NASA, Kennedy Space Center

A. PROBLEMS

No unanticipated problems are impeding the progress of the investigation.

B. ACCOMPLISHMENTS

Land use mapping of Orange County has continued, with four more sections of the county mapped during this period. The procedure used has been described in earlier progress reports.[1]

1 acings of the computer classification maps of the four sections are shown in Figures 1-4. Corrections are shown in Figures 5-8, with the new classification shown outside the parenthesis and the original classification inside the parenthesis. The corrected maps, with traffic zones, are shown in Figures 9-12.

[1]Landsat Progress Report for the period 12 February to 11 May 1976, BCPD L2-5.


43a
61
61
4
52
2
21c
N
21c
43a
1-11
52
12
43a
52
1-10
4
4
12
21c
52
61
4
12
52
52
2
12
61
4
21c
4
2
61
4
61
61
4
12
12
52
4
12
50
4
4
12
12
4
2
61
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11b
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52
52
4
21c
4
12
43a
43a
43a
2
21c

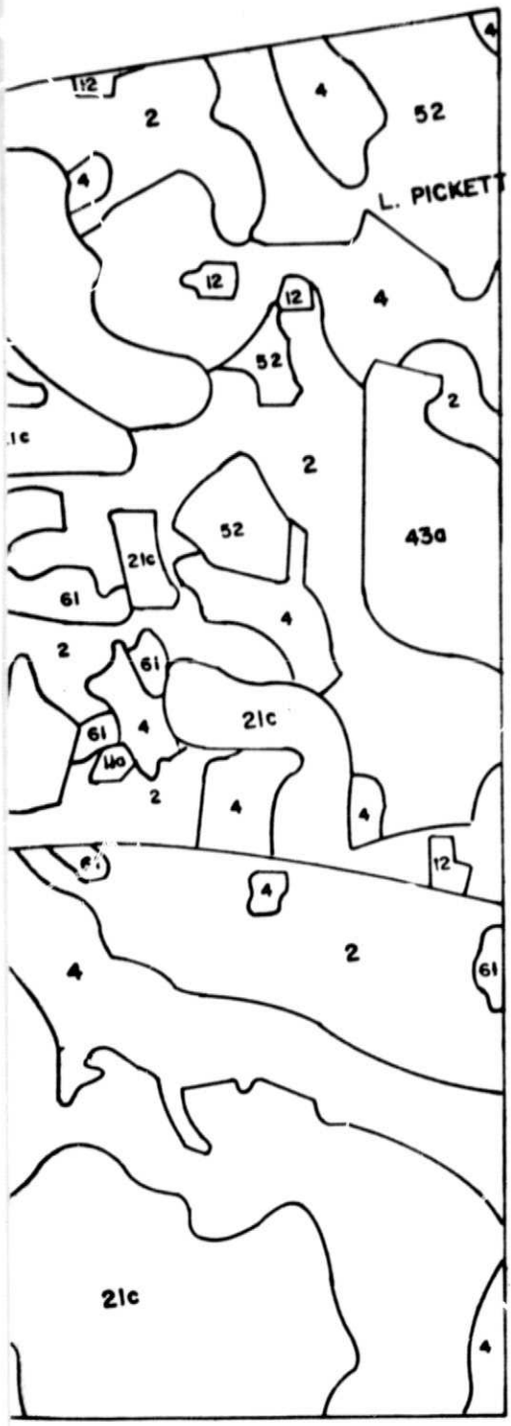
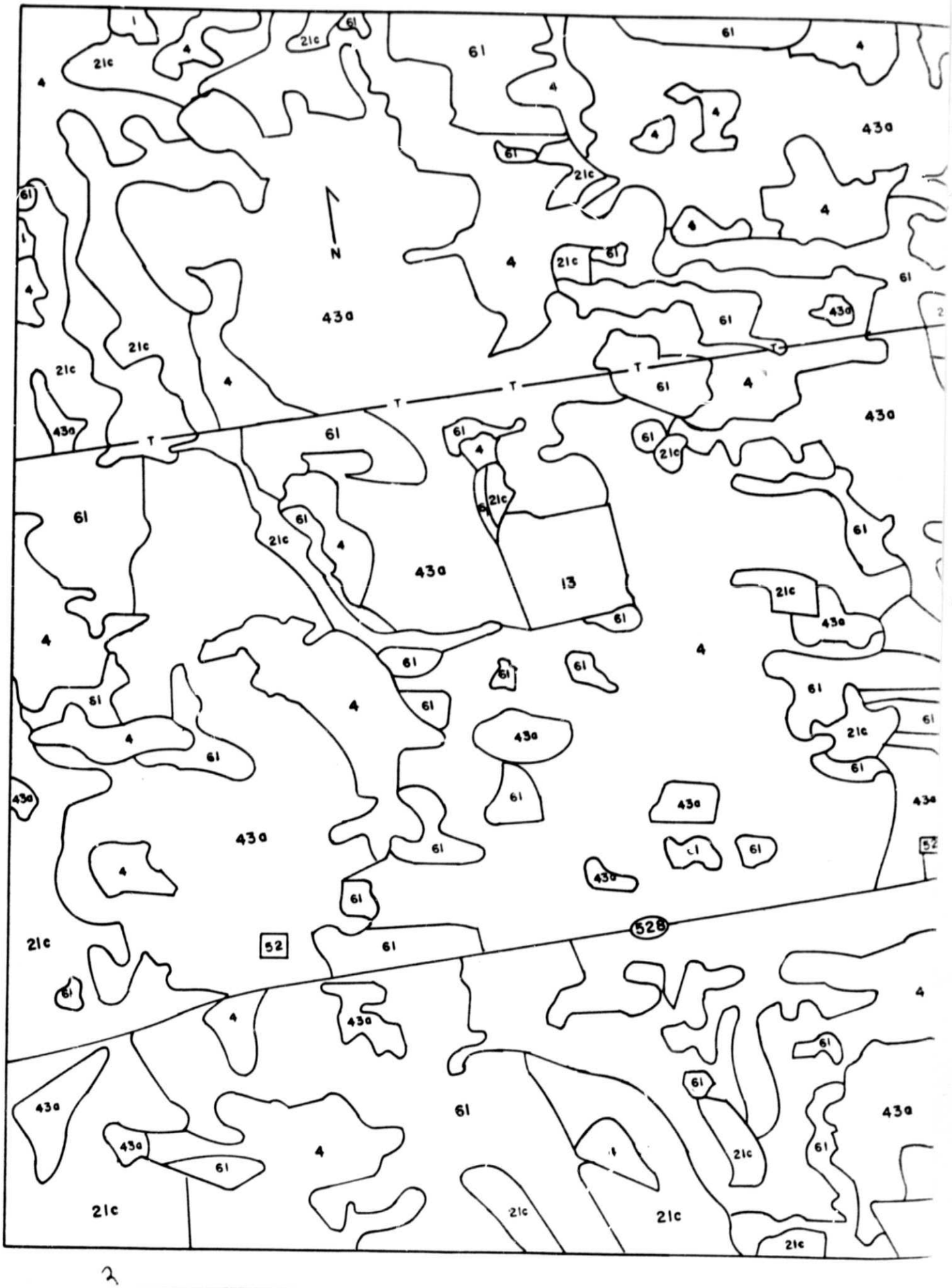


Figure 1

LANDSAT MAP
SECTOR 1 (EAST OF ORLANDO)



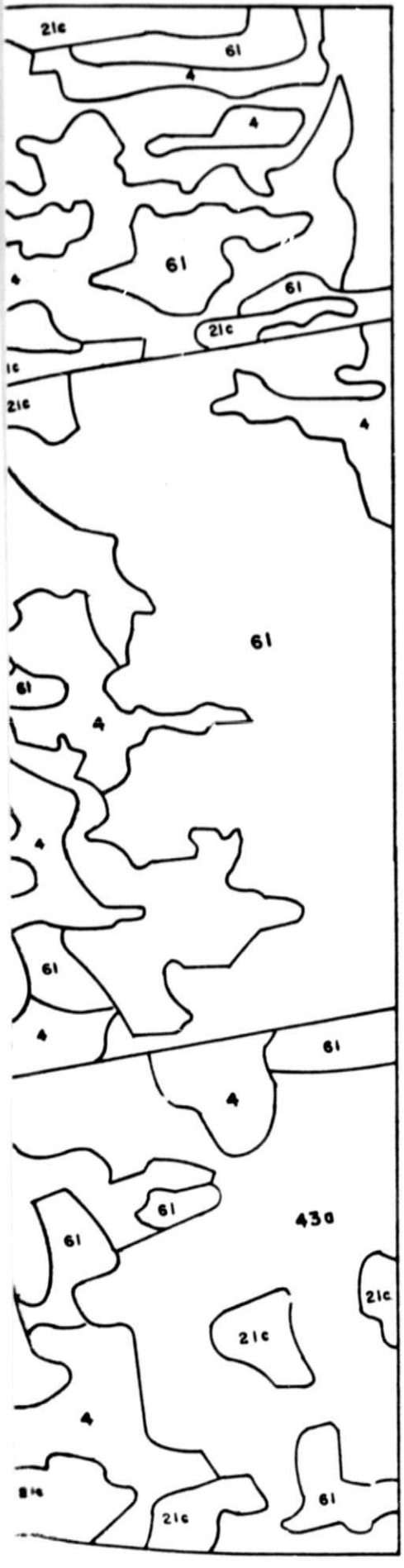
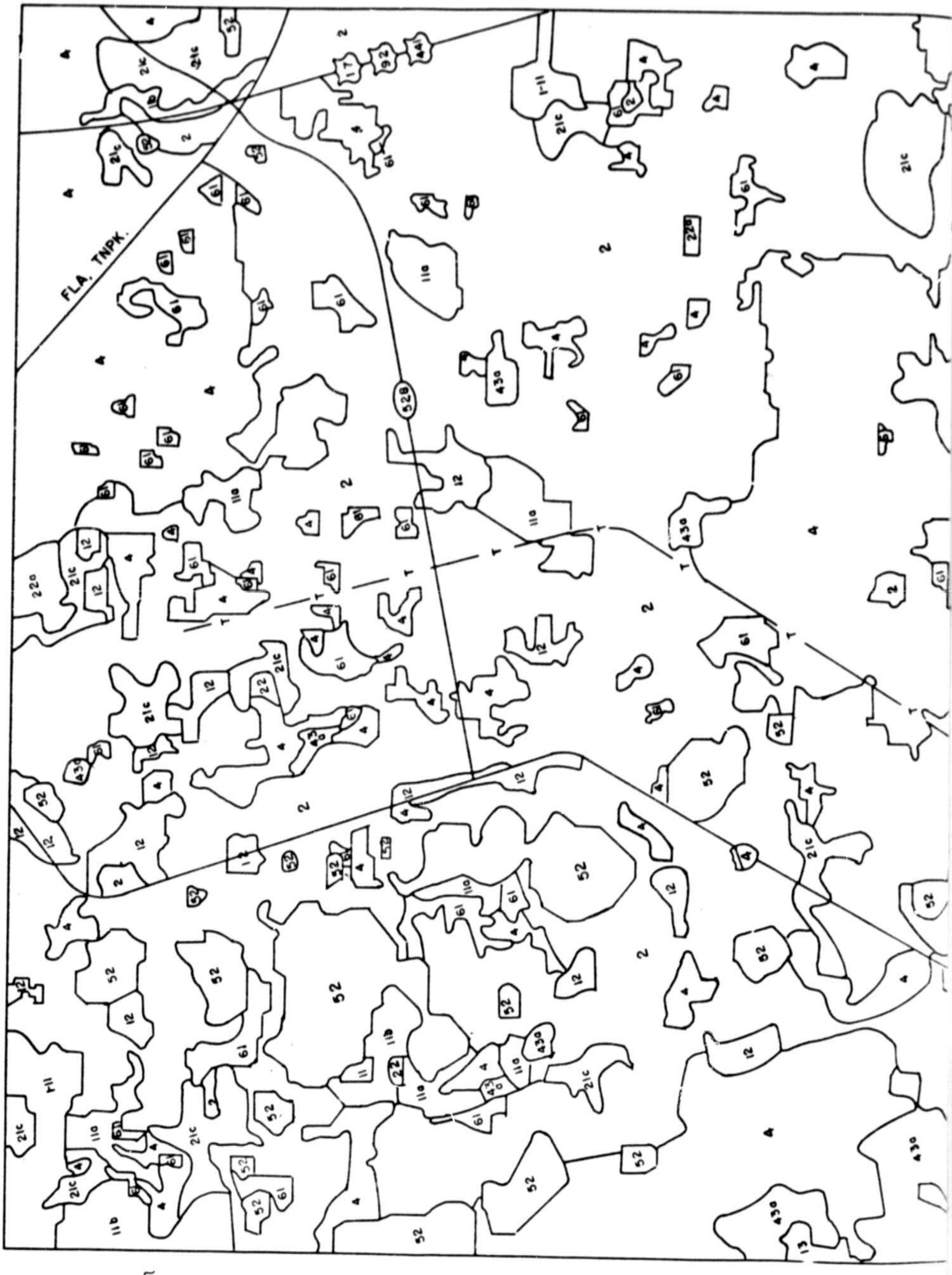


Figure 2

LANDSAT MAP
SECTOR 2 (SOUTHEAST OF ORLANDO)

Figure 3

LANDSAT MAP
SECTOR 3 (SOUTHWEST OF ORLANDO)


FLA. TNPK.
528

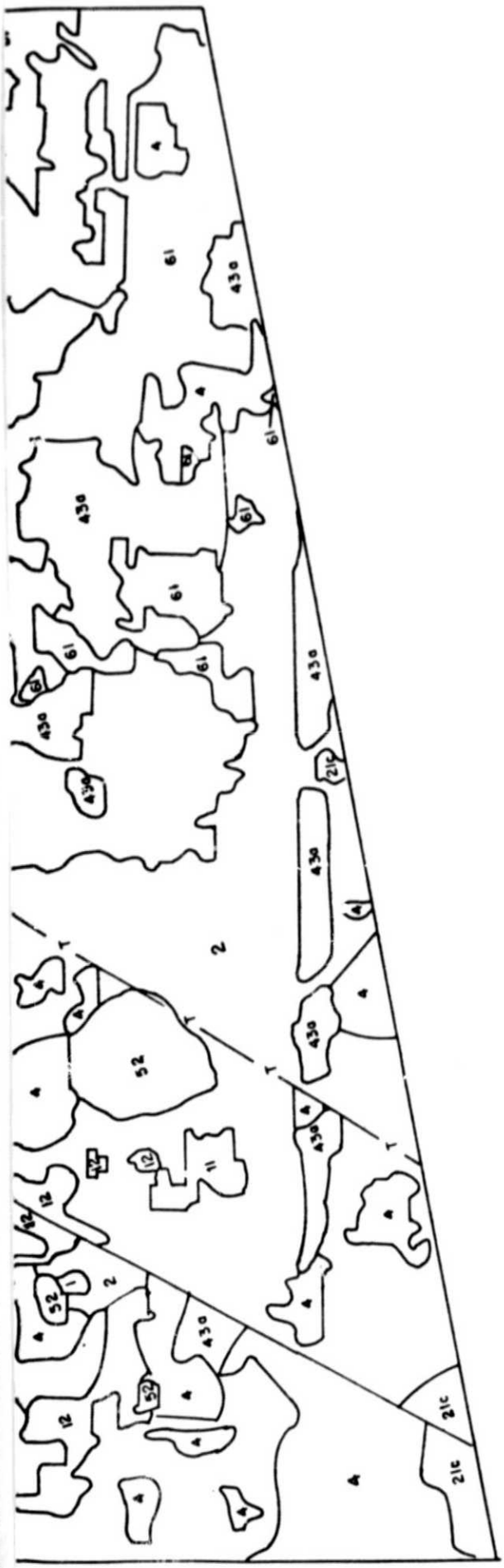
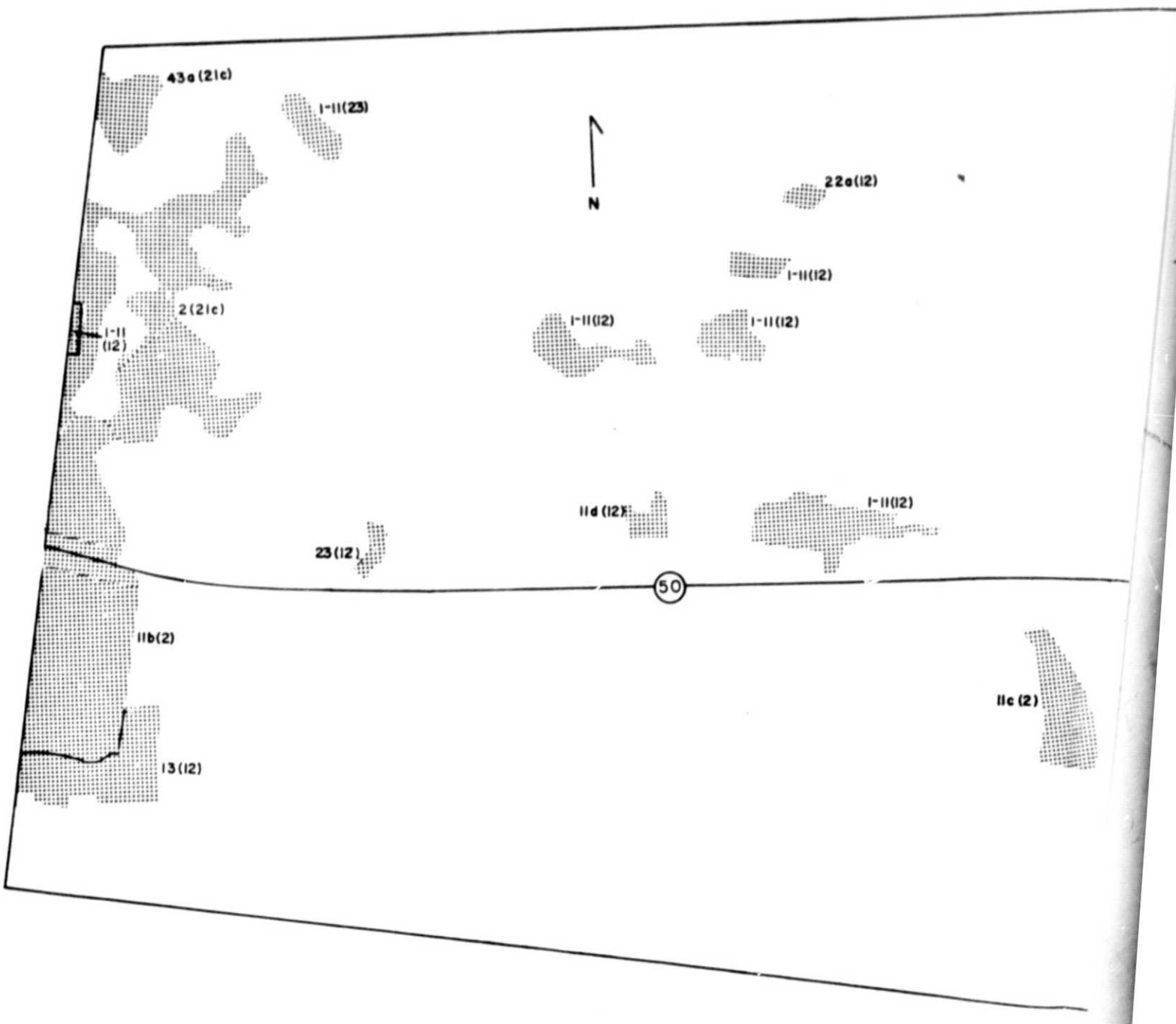


Figure 4

LANDSAT MAP
SECTOR 4 (EAST OF SECTOR 3)



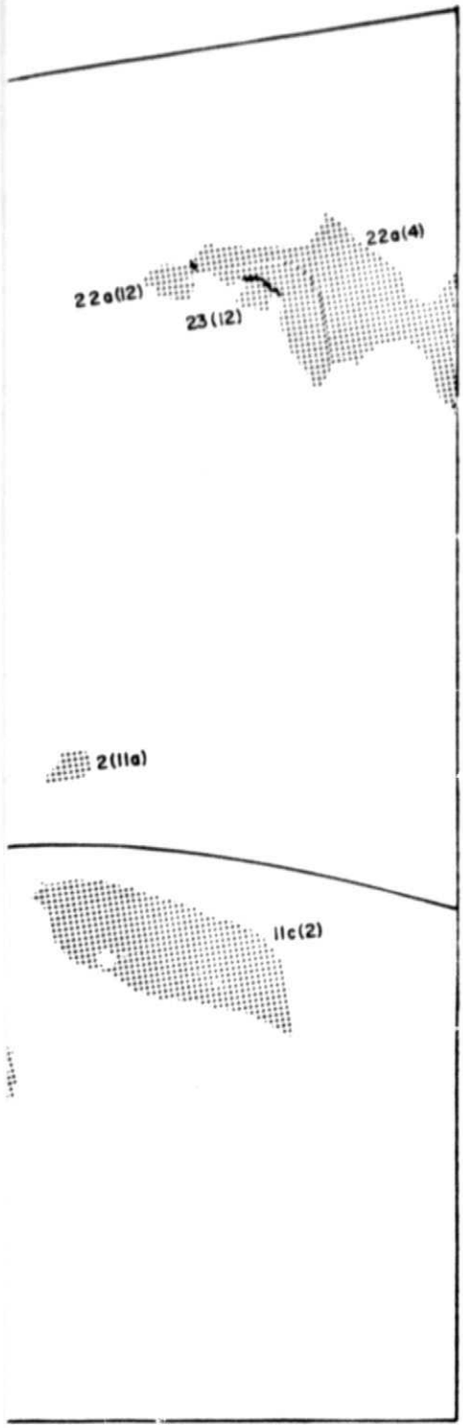
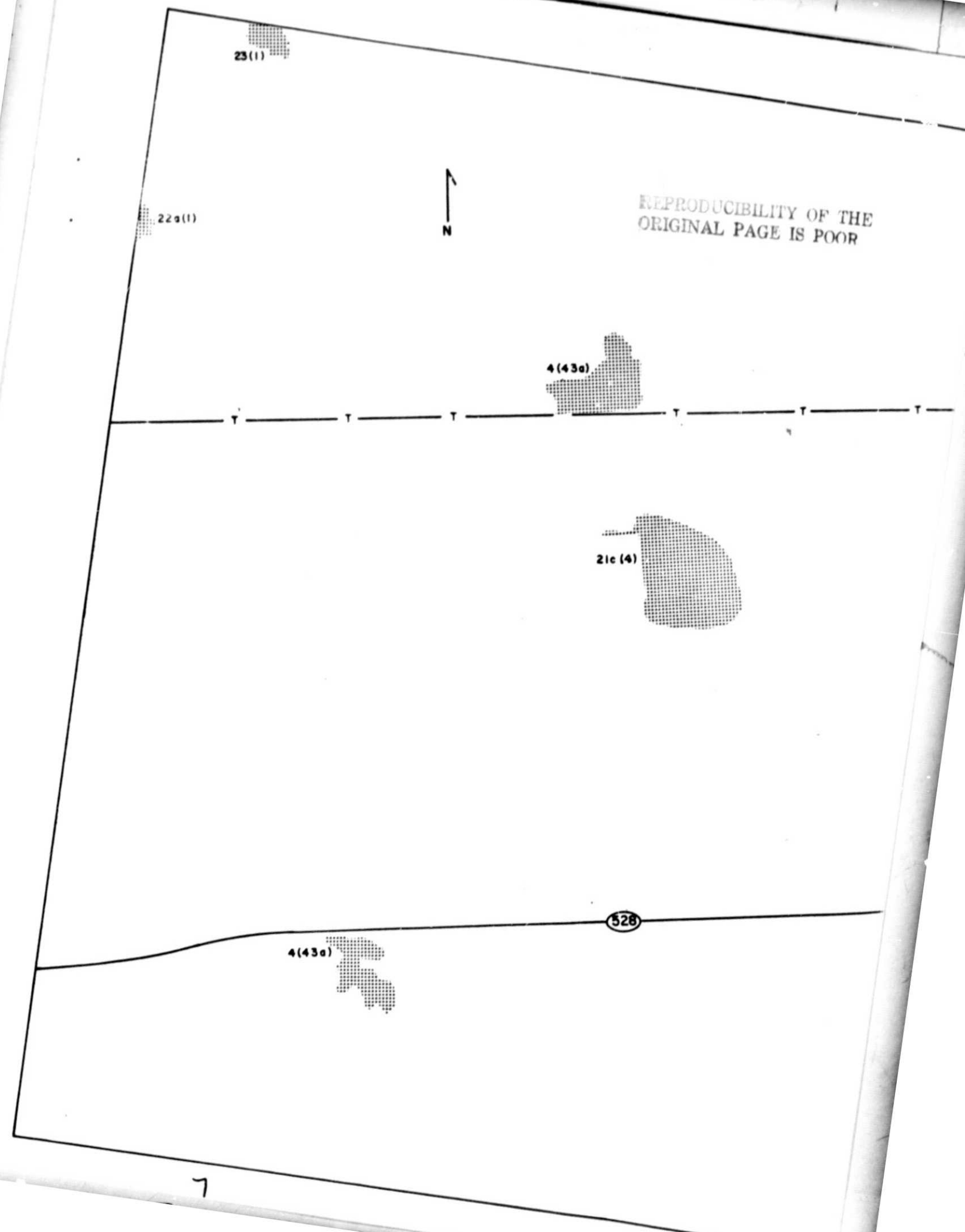


Figure 5

CORRECTIONS TO SECTOR 1



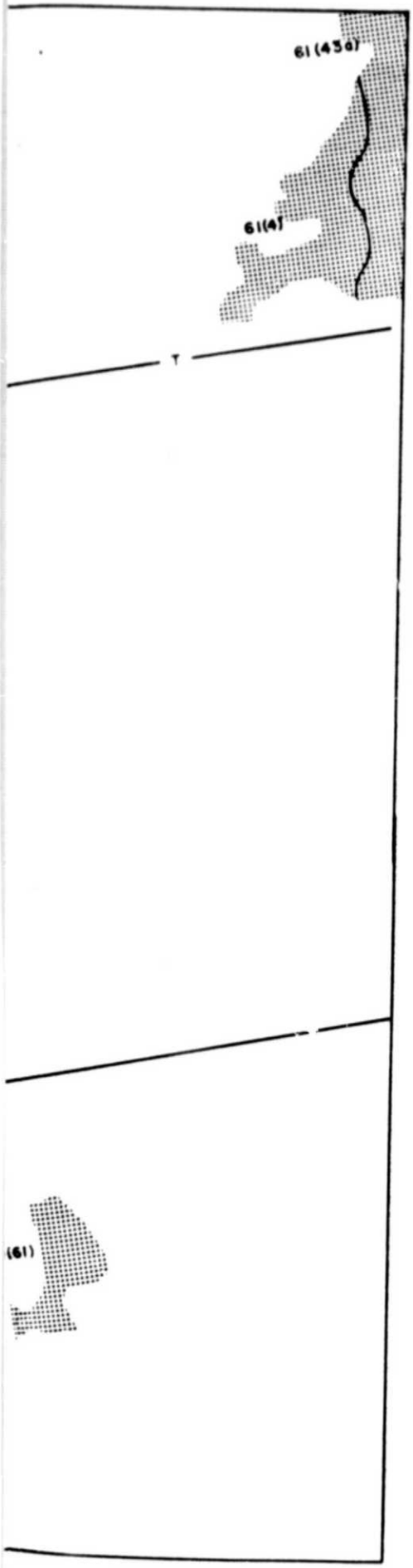


Figure 6

CORRECTIONS TO SECTOR 2


21c(22)
4(22)
21c(4)
22(4)
21c(22)
13(22)
4(22)
22(61)
22(61)
22(61)
22(61)
14(2)
23(12)
23(11b)
N
21c(22)
21c(61)
21c(22)
11c(22)
21c(22)
21c(22)
11c(22)
23(12)
4(22)
23(12)
21c(61)
23(22)
4(22)
4(22)
43a(22)
23(02)
22(21c)
23(12)
23(12)
4(22)
23(12)

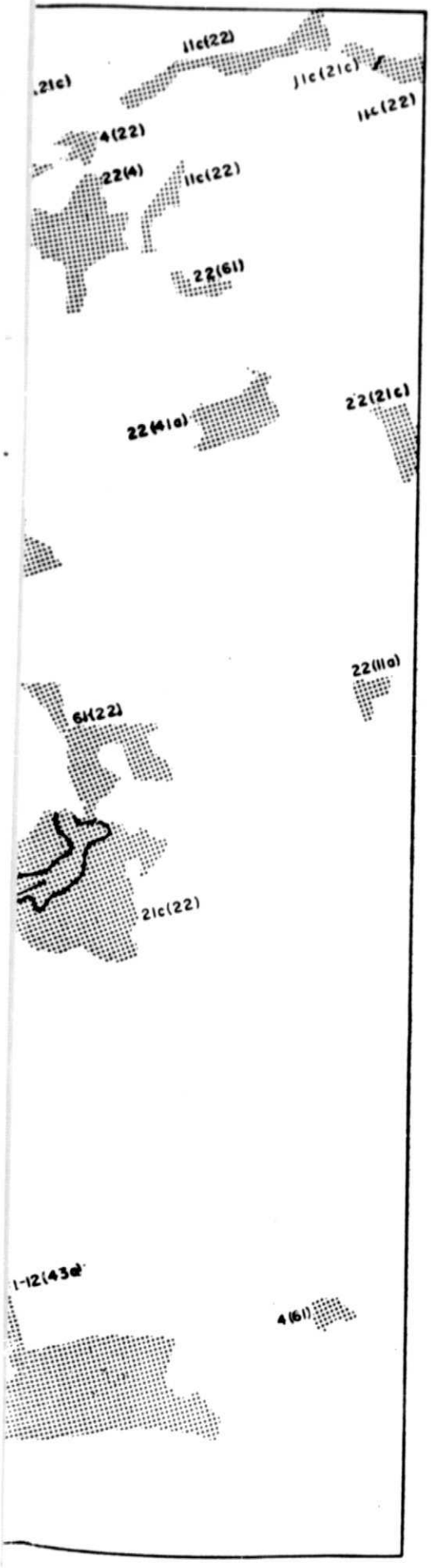


Figure 7

CORRECTIONS TO SECTOR 3


11b(21c)
11b(4)
22(11a)
22(4)
22(4)
23(12)
22(11b)
22(21c)
22(11b)
11b(22a)
11b(21c)
528A
13(43a)
13(12)
13(2)
4(2)
13(4)
12(4)
11a(21c)
11a(4)
12(2)
12(4)
12(21c)
4(2)
4(2)
4(6)
4(11a)
4(2)
43a(11a)
2(11b)
11d(2)
2(61)
4(22)
4(11a)
22(4)
11c(2)
11b(4)
22(21c)
22(12)
4(2)
528
4(2)
I-11(11a)
21c(11a)
4(2)
I-11(11a)
21c(61)
4(2)
21c(61)
17
92
441
12(2)
21c(4)
4(2)
N
21c(4)
21c(4)
4
I-10(2)
21c(4)
4(2)
21c(4)
4(61)
21c(61)
21c(22a)
4(2)
4(61)
21c(4)

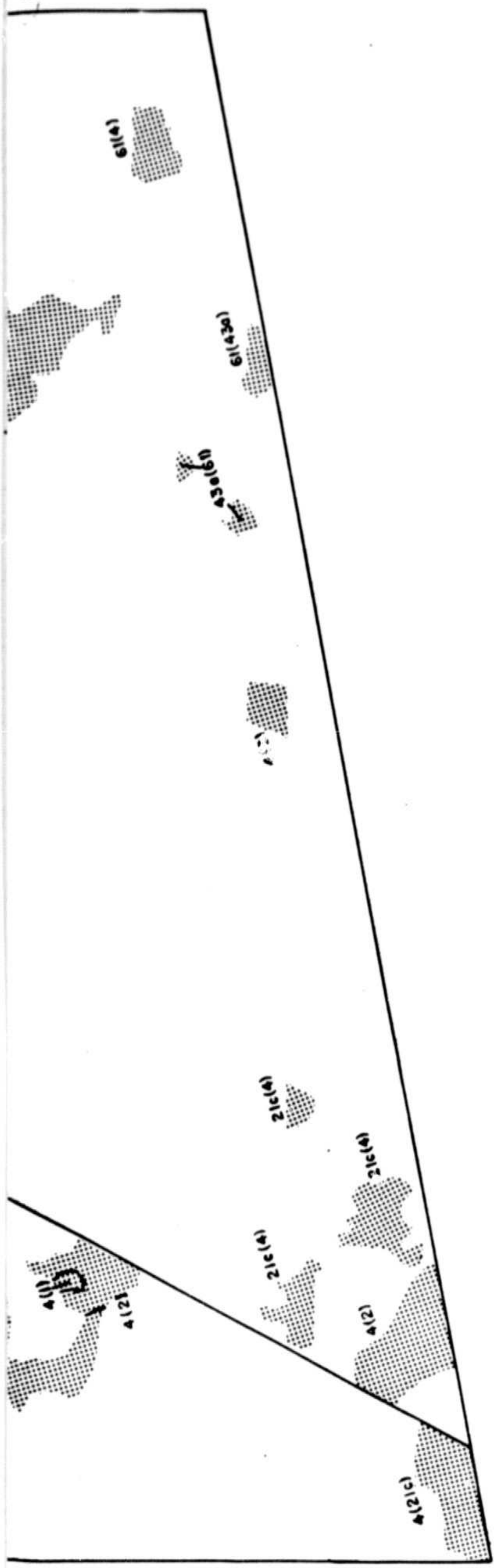


Figure 8

CORRECTIONS TO SECTOR 4


1-9
4
5-2
2-1c
2-2a
1-10
1-11
6-1
1-1
2-3
1-2
1-1d

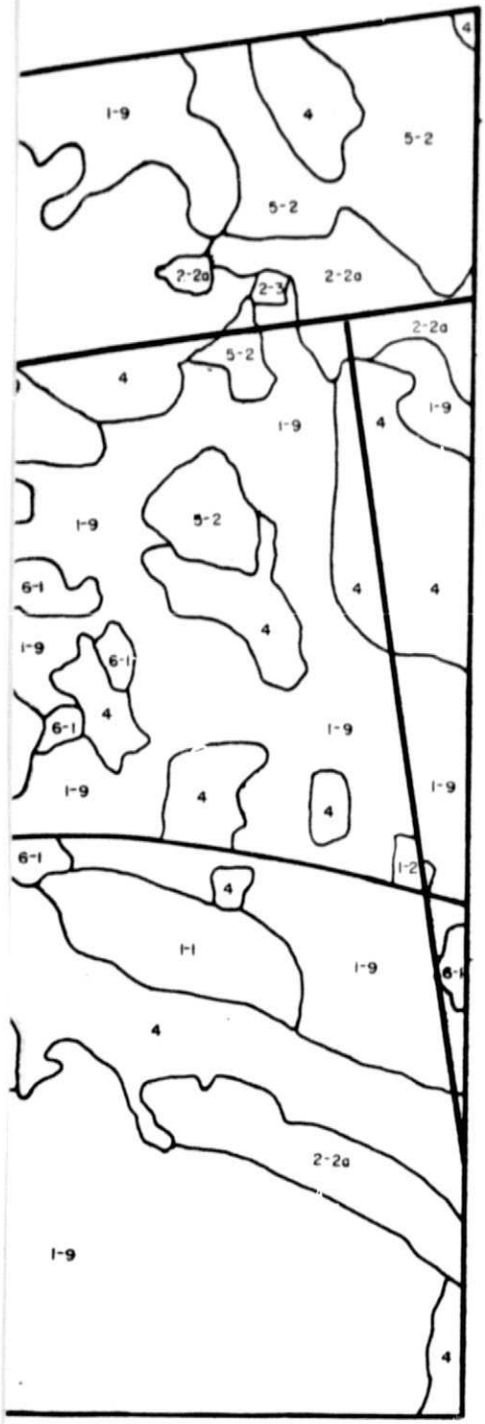


Figure 9

FINAL MAP, SECTOR 1


FLORIDA POWER TRANSMISSION LINES
BEE LINE EXPRESSWAY

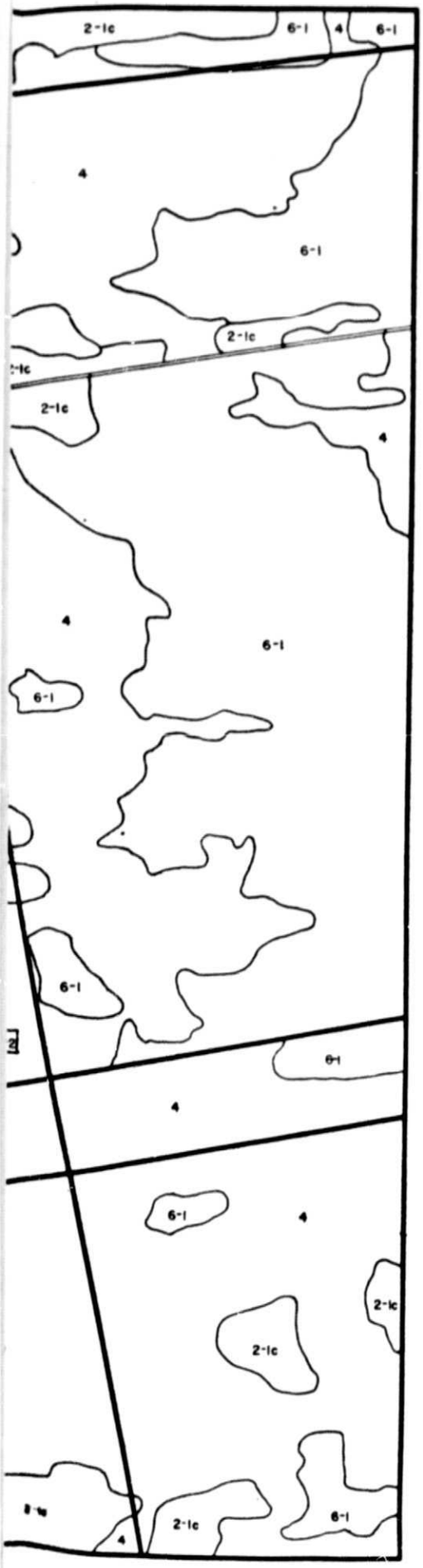


Figure 10

FINAL MAP, SECTOR 2

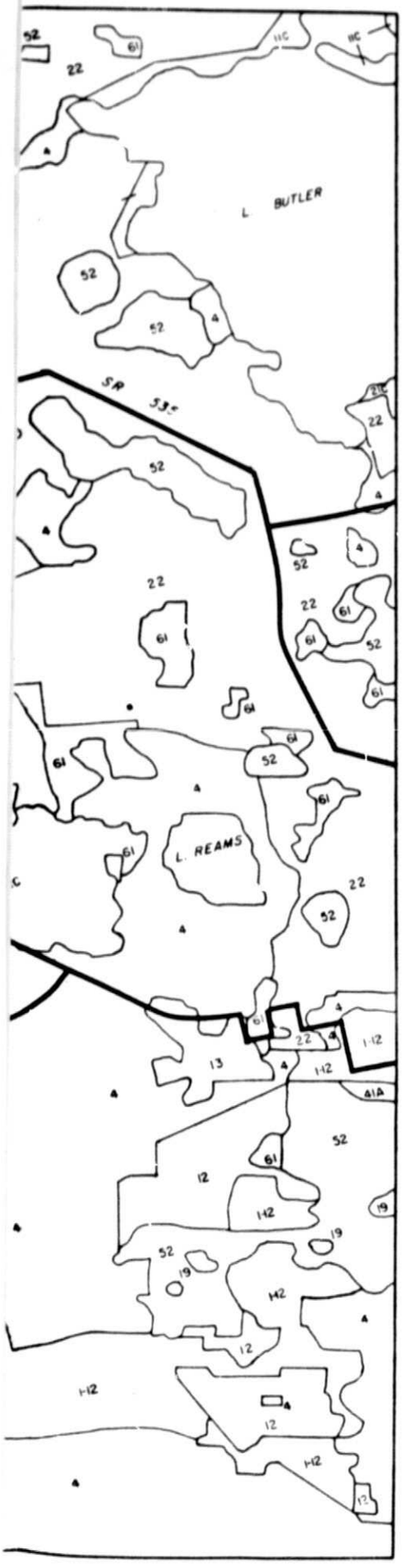


Figure 11

FINAL MAP, SECTOR 3


BIG SAND LAKE
POCKET LAKE
SR 528A
SR 528
FLORIDA TURNPIKE
17-92

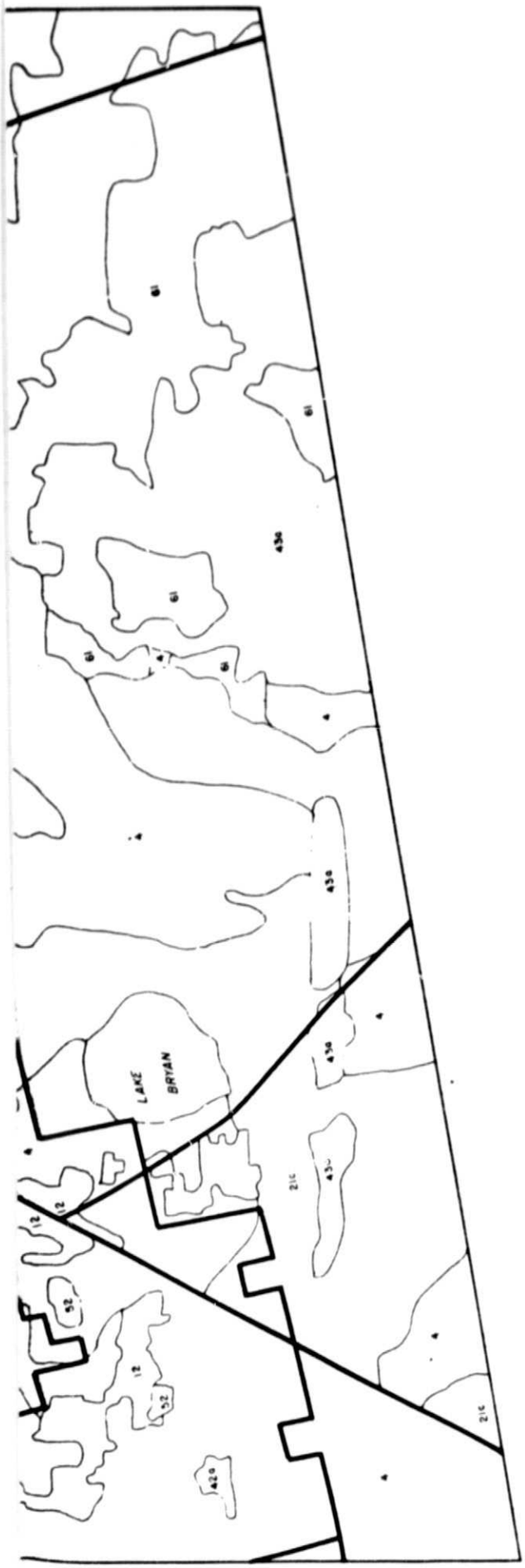


Figure 12

FINAL MAP, SECTOR 4

The sectors are two east of Orlando (Figures 9 and 10) and two southwest of Orlando (Figures 11 and 12).

In the two eastern sectors, the distinction between pasture, pine, and palmetto and forest is often unclear, even from the photography or direct observation; so the map contains some arbitrariness.

While the general level of classification is level 2, it will be noted that some regions are classified only to level 1 and others to level 3. For example, the general agricultural designator - 2 - was used when the printer characters were so mixed as to prevent more exact classification. A smimlar situation exists with forest classification.

As has been our practice, a limited amount of local knowledge has been used in interpreting features of the printer map.

It will be noted that Figure 11 is largely citrus groves and lakes with some forested regions. As has been noted previously, the spectral variety of citrus groves makes them difficult to classify from MSS data; and the citrus is mapped primarily by elimination of the better-defined classes.

Figure 12 is similar in nature to Figures 9 and 10 with the additional features of commercial development along the highways and some scattered residential development.

Tabulations of the various areas and the errors for the four sectors combined are given in Table 1. Tabulation of the accuracy figures is made in such a way that a given sector on the map has the indicated probability of being correct as shown by the map.

TABLE 1

CLASS		AREA PRIOR TO CORRECTION (HECTARES)	INCORRECT. (HECTARES)	ACCURACY (PER CENT)
1	Urban	20	18	
11	Residential	30		
11a	Wooded Residential	232	232	0
11b	Non-wooded residential	120	120	0
11c	Rural residential	1		
12	Commercial/Industrial	906	313	65
13	Industrial[2]	160		100
19	Urban undeveloped	7		
1-10	Institutional and Recreational[2]	63		
1-11	New construction	141		100
1-12	Tended grass[2]	161		100
2	Agricultural	10,859	908	82
21c	Pasture	3,230	544	83
22	Citrus groves	7,202	814	89
23	Bare sand in agricultural section	14	14	
4	Forest	11,132	869	85
41a	Cypress	235	22	91
41b	Hardwoods	23		
43a	Pine & Palmetto	7,203	336	95
52	Lakes	2,526		100
61	Marsh	4,347	180	96
	TOTALS	48,549	4,370	91

[2]Based on local knowledge.

If the Landsat map (Figures 1-4) showed a particular region classified only to level 1 but photograhy (and the final map, Figures 9-12) showed it to level 2 or 3 (with no change in the level 1 digit), it was not counted as an error and does not appear in Figures 5-8 or Tables 1-3 as an error. This occurred a few times when 2 was further identified as 43a and 2 as 21c.

Tabulation of errors, as shown in Figures 5-8, is given in Table 2.

When the figures of Table 1 are combined with previously-obtained results[3], the cumulative results given in Table 3 are obtained.

C. SIGNIFICANT RESULTS

None

D. PUBLICATIONS

None

E. RECOMMENDATIONS

None

F. FUNDS EXPENDED

Total Expenditures to date:

$30,031.21

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[3] Landsat Progress Report for the period 12 May to 11 August, 1976, BCPD L2-6, NASA-CR-149180

TABLE 2

ERRORS

Error Type Correct (Incorrect)	Area (Hectares)	Error Type Correct (Incorrect)	Area (Hectares)
22a(1)	4	11b(2)	129
23(1)	11	11c(2)	126
4(1)	3	11d(2)	1
Total (1)	18	12(2)	58
1-11(11a)	52	13(2)	30
2(11a)	3	14(2)	12
21c(11a)	45	1-10(2)	55
ss(11a)	43	4(2)	496
4(11a)	49	Total (2)	907
43a(11a)	39		
Total (11a)	232	11a(21c)	16
2(11b)	24	11b(21c)	40
22(11b)	37	11c(21c)	3
23(11b)	60	12(21c)	8
Total (11b)	121	2(21c)	245
11d(12)	9	22(21c)	159
13(12)	53	4(21c)	47
1-11(12)	96	43(21c)	25
22(12)	23	Total (21c)	543
23(12)	132		
Total (12)	313		
Total (1) + (11a) + (11b) + (12)	684		

TABLE 2 (Continued)

Error Type Correct (Incorrect)	Area (Hectares)	Error Correct (Incorrect)	Area (Hectares)
11b(22)	35	13(43a)	3
11c(22)	44	1-12(43a)	171
13(22)	8	4(43a)	76
21c(22)	420	61(43a)	86
23(22)	35	Total (43a)	336
4(22)	103		
43a(22)	134	Total (4) + (41a) + (43a)	1,226
61(22)	35	2(61)	2
Total (22)	814	21c(61)	81
		22(61)	35
1-11(23)	14	4(61)	55
Total (2) + (21c) + (22) + (23)	2278	43a(61)	6
		Total (61)	179
11a(4)	2		
11b(4)	6		
12(4)	11		
13(4)	27		
21c(4)	520		
22(4)	204		
61(4)	98		
Total (4)	868		
22(41a)	22		

TABLE 3

CLASS		AREA PRIOR TO CORRECTION		INCORRECT (HECTARES)	ACCURACY (PER CENT)
		HECTARES	ACRES		
1	Urban	20	49	18	
11	Residential	30	74		—
11a	Wooded residential	10,382	25,643	2,077	80
11b	Non-wooded residential	12,175	30,072	1,313	89
11c	Rural residential	3	7		
11d	Mobile Home parks	11	27		
11e	Bare Sand[2]	28	69		
12	Commercial/Industrial	3,921	9,685	396	90
13	Industrial[2]	160	395		
14	Extraction[2]	22	54		
15	Transportation[2]	202	499		
19	Urban undeveloped	7,716	19,058	1,242	84
1-10	Institutional & Recreational	63	156		
1-11	New construction	187	462	3	98
2	Agricultural	10,859	26,822	908	82
21a	Vegetables[2]	4,825	11,918	99	98
21c	Pasture	7,644	18,881	1,471	81
22	Citrus groves	22,296	55,071	5,100	77
4	Forest	23,239	57,400	1,441	91
41a	Cypress	235	580	22	91
41b	Hardwoods	23	57		
43a	Pine & Palmetto	7,503	18,532	348	95
52	Lakes	15,687	38,747		100
61	Marsh	5,481	13,538	304	94
	TOTALS	132,712	327,797	14,742	89

[2]Based on local knowledge

G. DATA USE

VALUE OF DATA ALLOWED	VALUE OF DATA ORDERED	VALUE OF DATA RECEIVED
$1200	$220	$220

One set of images and one ste of CCT's were received.

PERSONNEL

During this period, two personnel changes have occurred:

Willie Green, of the Earth Resources Group at Kennedy Space Center has taken over from Jay Millard, of the computer facility, the day-to-day computer input responsibility. Jay Millard continues to be available for trouble-shooting assistance. This change is in conjunction with the incorporation into the operational system of the Earth Resources Group of the computer programs developed for use in this and the preceding Landsat project.

Greg Adkins is no longer with the Orange County Planning Department; his role in this project has been assumed by Richard McMillan of that department.

APPENDIX

LAND-USE CATAGORIES:

Level 1	Level 2
01. Urban and built-up land	01. Residential a. Wooded residential b. Non-wooded residential c. Rural residential d. Mobile-home parks e. Bare sand (non-landscaped) 02. Commercial and services 03. Industrial 04. Extraction a. Phosphate mines b. Reclaimed phosphate mines c. Clay mining 05. Transportation 07. Strip 09. Open 10. Institutional & recreational 11. New Construction 12. Tended grass
02. Agricultural land	01. Cropland and pasture a. Muck farms (vegetable) b. Vegetable farming c. Pasture 02. Groves a. Primarily citrus 03. Bare sand in agricultural sector
03. Rangeland	01. Grass
04. Forest land	01. Deciduous a. Cypress b. Hardwoods 02. Evergreen (pine) 03. Mixed a. Pine and palmetto
05. Water	01. Streams and waterways 02. Lakes 03. Other (Gulf of Mexico)
06. Nonforested wetland	01. Vegetated 02. Bare
07. Barren land	03. Sand other than beaches